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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/539,475

11/30/2005

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71522-0016

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7590

03/17/2008

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EXAMINER

LUU, CUONG V

ART UNIT

PAPER NUMBER

2128

MAIL DATE

DELIVERY MODE

03/17/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/539,475	Applicant(s) DEHGHAN ET AL.	
	Examiner CUONG V. LUU	Art Unit 2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/22/05 6/20/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1-29 are pending. Claims 1-29 have been examined. Claims 1-29 have been rejected.

Claim Objections

1. Claims 4 and 19 are objected to because of the following informalities: the mathematical expression in these claims is not an equation as recited by the claimed invention.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 16-29 are rejected under 35 U.S.C. 101 as directed to non-statutory subject matter.

2. As per claim 16, the Examiner respectfully submits, under current PTO practice, that the claimed invention does not recite a tangible result. The claim is not tangible because the it does not produce any practical results for real world application/use as disclosed.
3. Claims 17-29 inherit the defects of claim 16.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4-5, 7, 19-20, 23, and 28 are rejected under the second paragraph of 35 U.S.C. 112.

4. Regarding claims 4-5, 7, 9, and 19-20, the phrase "for example" renders the claims indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. In addition, none of the parameters in the mathematical expression is defined, which also render the claims indefinite. See MPEP § 2173.05(d).
5. The term "substantially" in claims 7, 11, 23, and 28 is a relative term which renders the claim indefinite. The term "substantially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.
6. As per claim 12, it is rejected under the 2nd paragraph 35 U.S.C. 112 for being indefinite. The claim is indefinite for reciting "a communication network adapted to support the method steps of claim 1". Claim 1 is a method of simulating a communication network comprising employing a simulation tool and resolving iterative mathematical formula. How can a communication network adapted to support these steps?
7. As per claim 13, it is rejected under the 2nd paragraph 35 U.S.C. 112 for being indefinite for similar reasons recited in item 6. In addition, the phrase "such as" render the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

8. As per claims 15 and 29, they are rejected under the 2nd paragraph 35 U.S.C. 112 for being indefinite since it is not clear how and what “a simulation tool” is “adapted” to support the method steps of claim 1. Therefore, “adapted to” has not been given patentable weight.
9. As per claims 7 and 28, the phrase “real time manner in response to an output provided by the hardware platform” renders the claims indefinite because it is unclear because it is unclear what the Applicant means by this phrase. In examining these claims, the Examiner interprets it as according to the specification on page 9 lines 28-33 and page 10 lines 1-5.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-6, 8-27, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over the AAPA in view of Rappaport et al. (U.S. Patent 5,233,628).

10. As per claim 1, the AAPA teaches a method of simulating a communication network supporting communication between a plurality of communication units, wherein the method comprises the step of:

employing a simulation tool to resolve a mathematical formula relating to an operation of the communication network (p. 4 lines 15-23);

but does not teach resolving one or more iterative mathematical formula in hardware within a hardware platform of the simulation tool.

Rappaport teaches this feature of coupling the hardware platform resolving, by the hardware platform, the one or more mathematical formula with software (col. 4 lines 36-39).

It would have been obvious to one of ordinary skill in the art to combine the teachings of the AAPA and Rappaport. Rappaport's teachings would have allowed simulation of the transient nature of channels and radio hardware so that loss of synchronization can be included in the simulation (the abstract).

11. As per claim 2, the AAPA teaches a method of simulating a communication network according to claim 1, wherein the simulation tool further comprises a software platform (p. 4 lines 15-23), and utilizes a series of mathematical formula at least one of which has no closed form solution (p. 4 lines 15-23), the method further characterized the step of:

but does not teach the software operably coupled to the hardware platform resolving, by the hardware platform, the one or more mathematical formula that has no closed form solution.

Rappaport teaches this feature of coupling the hardware platform resolving, by the hardware platform, the one or more mathematical formula with software (col. 4 lines 36-39).

12. As per claim 3, the AAPA does not teach the step of providing, by the software platform, one or more input signals to the hardware platform, relating to the one or more mathematical formula to be resolved.

However, Rappaport teaches this feature (col. 4 lines 36-39).

13. As per claim 4, the AAPA teaches a method of simulating a communication network according to claim 2, wherein the method is further characterized by the step of configuring the hardware platform, by the software platform, by setting one or more parameters of the mathematical formula to be resolved, for example one or more path-loss parameters and/or a parameter in the equation (p. 5 lines 9-14 and p. 21 lines 8-20):

$$\frac{(E_b / N_0)_{BS_to_m}}{C / R_{BS_to_m}}$$

14. As per claim 5, the AAPA teaches the one or more input signals are in the form of an electrically variable signal, for example a voltage level, where a level of the electrically variable signal corresponds to a transmit power level of a communication unit operating in the communication network (p. 4 lines 3-13. Transmit power levels are employed or input here. This reads onto the limitation).

15. As per claim 6, the AAPA teaches the mathematical formula relate to an air-interface of a wireless communication network having communication units that are capable of

transmitting at differing radio frequency transmit powers, wherein the step of resolving comprises the step of converging a number of the transmit powers (p. 4 lines 3-13 and lines 25-33).

16. As per claim 8, the AAPA teaches the method is further characterized by the step of simulating a variation of a location of communication units as a function of time by adapting one input signal level (p. 4 lines 3-13. Transmit power levels are employed or input here. This reads onto the limitation).

17. As per claim 9, the AAPA teaches the method is further characterized in that the one or more input signal levels relate to any one or more of the following:

(iv) A power emission level from a subscriber unit and/or base station (p. 3 lines 6-12).

18. As per claim 10, the AAPA teaches the method is applied to a wireless CDMA (p. 4 lines 15-23).

19. As per claim 11, the AAPA teaches the method is applied to the following:

(i) A static simulation of a wireless communication network (p. 3 lines 2-12. the AAPA teaches simulation using parameters, i.e. location of MSs and activity of MSs. This teaching implies static - stationary MSs, so it reads onto this limitation);

20. As per claim 12, the AAPA teaches communication network adapted to support the method steps of claim 1 (p. 3 lines 28-33).

21. As per claim 13, the AAPA teaches a communication unit, such as an Operations and Management Centre (OMC) of a 3G communication network, adapted to support the method steps of claim 1 (p. 3 lines 28-33. The teaching of simulation of a communication network implementing the 3G inherits this limitation).
22. As per claim 14, the AAPA teaches a storage medium storing processor-implementable instructions for controlling a processor to carry out the method steps of claim 1 (p. 3 lines 28-33. These lines teach running simulation algorithm for simulating a communication network according to the steps recited in claim 1. This implies a storage medium storing processor-implementable instructions for controlling a processor to carry out the method steps of claim 1).
23. As per claim 15, the AAPA teaches a simulation tool, adapted to support the method steps of claim 1 (p. 3 lines 28-33).
24. As per claim 16, these limitations have already been discussed in claim 1. They are, therefore, rejected for the same reasons.
25. As per claim 17, the AAPA teaches to resolve one or more mathematical formula that has no closed form solution (as discussed in claim 2) but does not teach the hardware platform is configured the perform the resolving of one or more mathematical formula that has no closed form solution. However, the discussions in claim 1 read onto this feature.

26. As per claim 18, these limitations have already been discussed in claim 3. They are, therefore, rejected for the same reasons.

27. As per claim 19, these limitations have already been discussed in claim 4. They are, therefore, rejected for the same reasons.

28. As per claim 20, these limitations have already been discussed in claim 5. They are, therefore, rejected for the same reasons.

29. As per claim 21, these limitations have already been discussed in claim 8. They are, therefore, rejected for the same reasons.

30. As per claim 22, these limitations have already been discussed in claim 9. They are, therefore, rejected for the same reasons.

31. As per claim 23, Rappaport teaches the hardware platform comprises a plurality of substantially only two electronic components adder functions and multiplier functions (Fig. 4. The adder is element symbol Σ , and the multipliers are elements 55a and 55b).

32. As per claim 24, Rappaport teaches the interface comprises a plurality of sample and hold functions and `decoder logic` building blocks (Fig. 4 elements 57a and 57b and col. 5 lines 57-62).

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33. As per claim 25, the AAPA and Rappaport in combination teach the hardware platform is configured to resolve an equation of a form (the AAPA p. 16 lines 19-30 and Rappaport col. 4 lines 36-39):

$$I_m = \sum_{n=1, n \neq s}^{Nbs} P_n \times \frac{1}{L_n} + (P_s - P_m) \times \frac{1}{L_s} \times a$$

34. As per claim 26, the AAPA and Rappaport in combination teach the hardware platform is configured to resolve an equation of a form (the AAPA p. 17 lines 18-30 and Bereiter col. 4 lines 34-48):

$$I_m = \sum_{n=1, n \neq s}^{N_m} P_m \times \frac{1}{L_n} + (P_s - P_{m_to_BS}) \times \frac{1}{L_s}$$

35. As per claim 27, these limitations have already been discussed in claim 13. They are, therefore, rejected for the same reasons.

36. As per claim 29, these limitations have already been discussed in claim 12. They are, therefore, rejected for the same reasons.

Claims 7 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over the AAPA in view of Rappaport as applied to claims 1 and 16 above, and further in view of Soliman et al. (U.S. Patent 6,111,857).

37. As per claim 7, the AAPA teaches, on p. 3 lines 2-12, simulation using parameters, i.e. location of MSs and activity of MSs. Simulation using parameters, i.e. location of MSs and

activity of MSs in an ordinary practice would involve time varying or real time conditions comprising power level and noise interference. Nevertheless, the AAPA does not explicitly make these statements.

Soliman teaches the step of adapting an operational communication network, in a real-time manner, in response to one or more output (col. 3 lines 12-15. The planning tool that determines numerous system power levels as a function of dynamic – regarded as time varying or real time – variables lie user load and signal interference reads onto this limitation).

It would have been obvious to one of ordinary skill in the art to combine the teachings of the AAPA, Bereiter, and Soliman. Soliman's teachings would have helped plan for power consumption and control for a wireless network as required by a spread spectrum system (col. 2 lines 63-64).

38. As per claim 28, these limitations have already been discussed in claim 7. They are, therefore, rejected for the same reasons.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cuong V. Luu whose telephone number is 571-272-8572. The examiner can normally be reached on Monday-Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah, can be reached on 571-272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. An inquiry of a

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general nature or relating to the status of this application should be directed to the TC2100

Group receptionist: 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Cuong V Luu/

Examiner, Art Unit 2128

/Kamini S Shah/

Supervisory Patent Examiner, Art Unit 2128